

ym



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,560	09/21/2001	Samuel W. Sheng	01-319 / 1496.00134	5708
24319	7590	12/15/2004	EXAMINER	
LSI LOGIC CORPORATION 1621 BARBER LANE MS: D-106 MILPITAS, CA 95035			ENG, GEORGE	
			ART UNIT	PAPER NUMBER
			2643	
DATE MAILED: 12/15/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/960,560

Applicant(s)

SHENG ET AL.

Examiner

George Eng

Art Unit

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action is in response to the amendment filed 8/23/2004.

### ***Drawings***

2. The drawings are objected to because figure 6, step 214, "the digital switched capacitor array 154" should be --the digital switched capacitor array 204-- to be corrected. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-7 and 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Cranford, Jr. et al. (US PAT. 5,940,441 hereinafter Cranford).

Regarding claim 1, Cranford discloses an apparatus (100, figure 1) for equalizing a communication signal (112, figure 1), i.e., an analog input, transmitted through a transmission medium (110, figure 1) comprising a first circuit (102, figure 1) for filtering the communication signal in an analog domain in response to one or more control signals (116, figure 1), a second circuit (202, figure 2) for converting the communication signal to a digital signal, and a third circuit ((204, figure 2) for generating the control signals (210 and 212 figure 2) in response to the digital signal, wherein the third circuit is configured to adjust the transfer characteristics of the first circuit thereby compensating for loss and distortion of the signal caused by the transmission medium, i.e., to control skewing of the communication signal within the first circuit to partially compensate for frequency dependent effects associated with the transmission medium (abstract and col. 3 line 34 through col. 5 line 15).

Regarding claims 2-4, Cranford discloses the third circuit being configured to calibrate the first circuit and to provide back-end digital processing control over the first circuit, wherein

the first circuit is configured to provide partial adaptation of the communication signal in the analog domain (col. 2 lines 18-30 and col. 3 lines 57-62).

Regarding claims 5-6, Cranford discloses the first circuit comprising a filter configured to tune the analog input signal and a processor configured to calibrate the filter, wherein the third circuit is configured to offset the filter (col. 3 lines 34-62).

Regarding claim 7, Cranford discloses the first circuit comprising a analog filter (102, figure 1), the second circuit comprising an analog-to-digital conversion circuit (202, figure 2), and the third circuit comprising a digital signal processing device (204, figure 2) to generate the control signals.

Regarding claim 9, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claim 10, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claim 11, the limitations of the claim are rejected as the same reasons set forth in claims 2-4.

Regarding claims 12-13, the limitations of the claim are rejected as the same reasons set forth in claims 5-6.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cranford, Jr. et al. (US PAT. 5,940,441 hereinafter Cranford) in view of English (US PAT. 5,489,879).

Regarding claim 8, Cranford discloses the filter (102, figure 4) comprising a current source, a digital switched capacitor array circuit (C, figure 4), a rectifier (G, figure 4) and an analog-to-digital converter (208, figure 2) to compensate for semiconductor process variations (col. 4 lines 9-27 and col. 7 line 1 through col. 10 line 61). Although Cranford does not specifically disclose the digitally switched capacitor array circuit, the rectifier and the analog-to-digital converter being configured to sweep over code values and determine a center value, it is old and notoriously well known in the art of operating a filter components including the digitally switched capacitor array circuit, the rectifier and the analog-to-digital converter to compensate for frequency-dependent characteristics and provide a high quality subcarrier signal by sweeping over code values and determine a center value, thereby the subcarrier signal produced more closely matches the desire shape and center frequency, for example see English

(col. 3 line 42 through col. 5 line 21). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cranford in having the digitally switched capacitor array circuit, the rectifier and the analog-to-digital converter being configured to sweep over code values and determine a center value, as per teaching of English, because it compensates for frequency-dependent characteristics and provides a high quality subcarrier signal so that the subcarrier signal produced more closely matches the desired shape and center frequency.

### ***Response to Arguments***

7. Applicant's arguments filed 8/23/2004 have been fully considered but they are not persuasive.

In response to applicant's argument that Cranford fails to mention the third circuit configured to control skewing of analog input signal within the first circuit to partially compensate for frequency dependent effects associated with a transmission medium, it is noted that Cranford clearly teaches the third circuit being configured to adjust the transfer characteristics of the first circuit, i.e., continuous-time filter, thereby compensating for loss and distortion of the signal caused by the transmission medium (abstract and col. 3 line 34 through col. 5 line 15). Although no references of the words "skew" or "skewing" appear in the cited text of Cranford, Cranford using the word "distortion", which has the same meaning as "skew" or "skewing". See Webster's II New Riverside University Dictionary. Note Thus, one skill in the art would recognize that Cranford inherently teaches every element of the claimed limitations.

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

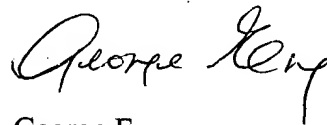
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Eng whose telephone number is 703-308-9555. The examiner can normally be reached on Tue-Fri 7:30 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A. Kuntz can be reached on 703-305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Art Unit: 2643

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "George Eng". The signature is fluid and cursive, with the first name "George" written in a larger, more prominent script than the last name "Eng".

George Eng  
Primary Examiner  
Art Unit 2643